

#2005  
10-14-03



Docket No. BIO-76

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Shlomo Ben-Haim et al.  
Serial No. : 09/379,540  
Filed : August 24, 1999  
Title : INTRACARDIAC CELL DELIVERY AND CELL  
TRANSPLANTATION

Art Unit : 3736  
Examiner : Roz Ghafoorian

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Louis J. Capezzuto

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(Name of applicant, assignee, or Registered Representative)

  
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(Signature)

October 2, 2003

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**BRIEF ON APPEAL**

**(1) Real Party in Interest**

Biosense, Inc., a Delaware Corporation, is the real party in interest.

**(2) Related Appeals and Interferences**

None.

**(3) Status of Claims**

10/08/2003 DTESSEM1 00000030 100750 09379540

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Claims 1-40 of the present application have been finally rejected on May 27, 2003 and this appeal is taken from these claims. There are no other claims at issue in this application.

**(4) Status of Amendments**

No amendments have been filed subsequent to the issuance of the Final Rejection dated May 27, 2003.

**(5) Summary of the Invention**

The present invention is a novel method for inducing angiogenesis or myogenesis in a heart 70 of a patient as depicted in Fig. 5 (Specification, Page 43, Lines 3-5). The method for inducing angiogenesis or myogenesis comprises the steps of providing a system 48 or 96 for intracardiac drug administration. The system 48 or 96 is depicted in Fig. 2 and Fig. 6B respectively. The system 48 or 96 comprises a catheter 20, 45 or 64 (as shown in Figs. 1A, 1B, 1C and 4C respectively) having at least one position sensor 32 which generates signals responsive to an applied field for determining the position and orientation of the catheter 20. These signals are used to generate both position coordinates and orientation coordinates of the catheter 20. See Specification, Page 26, Lines 4-13. The catheter 20 also comprises a drug delivery device 24 (such as a hollow needle) for delivering a cell. See Specification, Page 41, Lines 8-12.

The system 48 or 96 also comprises control circuitry 52 (Fig. 2 and Fig. 6B) for determining both position coordinates and orientation coordinates of the distal end 22 of the catheter 20 and for generating a viability map of the heart 70 (Specification, Page 9, Lines 9-21) which comprises a site suitable for targeted therapy by the catheter 20.

Further steps of the novel method of the present invention comprise generating the viability map of the heart 70 and identifying the site suitable for targeted therapy on the viability map. See Specification, Page 41, Line 12 – Page 42, Line 2.

Additionally, the catheter 20 is inserted into a chamber of the heart 70 at the site (Fig. 5) and the cell is delivered to the site with the drug delivery device 24 based on the position and orientation coordinates in response to the signals from the position sensor 32 for inducing angiogenesis or myogenesis in the site of the heart 70 from the delivered cell.

Other aspects of the Applicant's claimed invention include the cell being a myoblast or myocyte (Specification, Page 37, Lines 6-9); assessing the viability of the heart prior to delivering the cell; delivering the cell based on the assessed viability of the heart; assessing the viability of the heart by creating a map of the heart; identifying an ischemic zone of the heart on the map; determining the site within the ischemic zone; assessing the viability of the heart after delivering the cell; identifying an infarct region of the heart on the map; and determining the site at the infarct region. See Specification, Page 41, Line 12 – Page 42, Line 20.

Additional aspects of the Applicant's novel invention comprise using the cells as an expression vector capable of expressing an angiogenic factor (Specification, Page 37, Line 16 – Page 38, Line 3). The expression vector can be a recombinant molecule such as a gene and the angiogenic factor can be a growth factor.

Additionally, other novel aspects of the Applicant's claimed invention includes using a cell that is capable of cell fusion with other cells and wherein the cell fusion results in myogenesis. See Specification, Page 39, Lines 12-14. The cells can be obtained from a donor (Specification, Page 39, Lines 15-18); or the cell can be harvested from the patient (Specification, Page 44, Lines 4-17). The cell can also be a xenograft (See Specification, Page 41, Lines 1-5) and can include the use of immunosuppressants.

Additionally, another novel aspect of the Applicant's claimed invention is to deliver the cell at an oblique angle at the site suitable for targeted therapy. See Specification, Page 42, Lines 18-22.

In one embodiment in accordance with the present invention, the drug delivery device 24 of the catheter 20 is a hollow needle; and in other embodiments in accordance with the present

invention the drug delivery device is capable of providing a pressure burst. See Specification, Page 43, Lines 16-22. In accordance with the present invention, the needle is retractable into and out of the distal end 22 of the catheter 20. See Specification, Page 43, Lines 17-22.

**(6) Issues**

1. Whether the Examiner's rejection of Claim 1 under the judicially created doctrine of double patenting over Claim 1 of U.S. Patent No. 6,309,370 is still proper.
2. Whether the Examiner's rejection of Claims 1-18 and 25-40 under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent No. 6,321,109 (Ben-Haim et al.) and further in view of U.S. Patent No. 6,283,951 (Flaherty et al.) is both proper and has legal merit.
3. Whether the Examiner's rejection of Claims 1-18 and 25-40 under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent No. 6,027,473 (Ponzi) and further in view of U.S. Patent No. 6,283,951 (Flaherty et al.) is both proper and has legal merit.
4. Whether the Examiner's rejection of Claims 19-24 under 35 U.S.C. § 103 (a) as being unpatentable over Flaherty, in view of U.S. Patent No. 6,321,109 ("Hamis", although should be properly identified as "Ben-Haim et al.") over U.S. Patent No. 6,027,473 (Ponzi) in view of U.S. Patent No. 6,283,951 (Flaherty et al.) further in view of U.S. Patent No. 6,258,789 (German et al.) is both proper and has legal merit.

**(7) Grouping of Claims**

All claims stand or fall together for the grounds of the rejections.

**(8) Argument**

- A. The Examiner's double patenting rejection over U.S. Patent No. 6,309,370 (Ben-Haim et al.) has already been successfully addressed and the rejection should be withdrawn.**

The Applicant would like to point out that this double patenting rejection was originally raised by the Examiner in the Office Action mailed on October 25, 2002.

The Applicant subsequently filed a properly executed terminal disclaimer dated May 5, 2003 which was faxed to the Examiner on May 5, 2003 in accordance with the Examiner's request. It is attached herewith as Attachment 1. This includes confirmation that the fax transmission of this document was received at the Examiner's fax number as "OK". Accordingly, the Applicant maintains that this rejection has been properly satisfied and respectfully requests that the rejection be withdrawn.

**B. The rejection of Claims 1-18 and 25-40 under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent No. 6,321,109 (Ben-Haim et al.), and further in view of U.S. Patent No. 6,283,951 (Flaherty et al.) is not only improper, it is completely without merit.**

It is clear that the U.S. priority date for the Applicant's present application is February 5, 1998. Additionally, the Applicant would like to point out that U.S. Patent No. 6,321,109 (Ben-Haim et al.) is not only an issued U.S. patent owned by the Applicant, but also, has a prior art date under 35 U.S.C. § 102 (e) of December 29, 1998. Accordingly, the 102 (e) prior art date of the '109 Ben-Haim et al. patent is after the priority date of the Applicant's claimed present invention. Thus, this reference does not constitute a proper prior art reference under 35 U.S.C. § 102 (e).

Additionally, the Applicant notes that Applicant's issued U.S. Patent No. 6,321,109 (Ben-Haim et al.) is based on a PCT Patent Application (published as WO97/29701 published on August 21, 1997). Accordingly, even the published PCT application of the '109 Ben-Haim et al. patent does not constitute a proper prior art reference under 35 U.S.C. § 102 (b).

Moreover, in the event someone was to conclude that the '109 Ben-Haim et al. patent is a prior art reference under 35 U.S.C. § 102 (e), it is important to note that both the '109 Ben-Haim et al. patent and the Applicant's present invention (Applicant's present application) were, at the time the invention was made, owned by the same person

or subject to an obligation of assignment to the same person and in accordance with 35 U.S.C. § 103 (c), since both the '109 Ben-Haim et al. patent and the Applicant's present application are assigned to the same legal entity, i.e. Biosense, Inc., and thus are exempt from a 35 U.S.C. § 103 (a) rejection based on 35 U.S.C. § 103 (c). A copy of the recorded Assignment for Applicant's issued U.S. Patent No. 6,321,109 (Ben-Haim et al.), U.S. Patent Application Serial No. 09/117,804, Reel/Frame No., 9672/0661 is attached hereto as Attachment 2.

Moreover, the '109 Ben-Haim et al. does not address in any manner a method for inducing angiogenesis or myogenesis in a patient's heart using delivered cells such as found with Applicant's claimed present invention.

Furthermore, the Applicant would also like to point out that Flaherty et al. does not describe, suggest or even infer the Applicant's claimed present invention even if it were to be combined with the '109 Ben-Haim et al. patent. Flaherty et al. describes systems and methods for delivering drugs to selected locations within the body. In this reference, the term "drug" is described to include cells, such as myocytes. Col. 3, lines 53-56. Although this reference does mention using an "orientation element", the orientation element described in Flaherty et al. is not a position sensor capable of generating signals responsive to an applied field for determining the position and orientation of the catheter. But rather, the "orientation element" is either a "cage structure that includes a plurality of struts extending axially along the distal portion" of the catheter (in one embodiment), or "a marker that may be imaged using an external imaging system, and preferably a pair of markers disposed opposite one another on the periphery, either instead of or preferably in addition to the cage structure." Col. 4, lines 50-64. Thus, the "orientation element" of Flaherty et al. is entirely incapable of being used as a position sensor which generates signals responsive to an applied field for determining the position and orientation of the catheter. Moreover, Flaherty et al. clearly does not describe, suggest or infer utilizing a position sensor which generates signals responsive to an applied field to generate position and orientation coordinates such as found in the Applicant's claimed invention.

Accordingly, the cage or visible marker of the Flaherty et al. device can only be used to determine the orientation of the puncturing element, i.e. orientation in relation to the surrounding tissue. Col. 5, lines 13-23. Additionally, the Flaherty et al. device must utilize an imaging device, i.e. an ultrasound transducer, which takes images, “preferably including the orientation element, the selected tissue region, and/or other landmarks within the vessel or the surrounding tissue.” Col. 5, lines 18-23. Thus, based on this imaging technique, only the orientation of the puncturing element can be determined which is due to the imaging of the surrounding anatomical landmarks. Clearly, the orientation element and imaging element combination of Flaherty et al. simply does not address or suggest generating signals responsive to an applied field for determining the position and orientation of the catheter wherein the signals are used to generate position and orientation coordinates and wherein the cell is delivered to a site within the heart (with the drug delivery device) based on the position and orientation coordinates.

Moreover, as set forth in *In re Gurley*, 27 F.3d 551; 31 USPQ 2d 1130 (Fed. Cir. 1994):

A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be in a direction divergent from the path that was taken by Applicant.

Accordingly, if one of ordinary skill were to follow the path set out in the teaching of Flaherty et al., this person would never arrive at the Applicant’s claimed invention since it is clearly divergent from the Applicant’s claimed invention since Flaherty does not at all teach a position sensor which generates signals responsive to an applied field for determining the position and orientation of a catheter along with control circuitry for determining position and orientation coordinates of distal end of the catheter and for generating a viability map indicating a site suitable for targeted therapy by the catheter such as found with the Applicant’s claimed present invention.

But rather, Flaherty contains the very limited teaching of a catheter which uses a cage structure having a plurality of struts or a marker that is imaged with an external imaging system as an “orientation element”. This is entirely distinct from the

Applicant's novel method which includes novel elements to include its position sensor. Thus, Flaherty et al. actually teaches away from the Applicant's claimed invention.

Accordingly, based on the reasons detailed above, this rejection is both improper and without legal basis as well as clearly erroneous and should be overruled.

**C. The rejection of Claims 1-18 and 25-40 under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent No. 6,027,473 (Ponzi) and further in view of U.S. Patent No. 6,283,951 (Flaherty et al.) is not only improper, it is without legal merit.**

With respect to this prior art rejection, the Applicant would like to point out that U.S. Patent No. 6,027,473 (Ponzi) has a filing date of September 5, 1997 and an issue date of February 22, 2000. And, as mentioned previously, the present application has a priority date of February 5, 1998 (and a filing date of August 24, 1999). Accordingly, the Examiner's rejection under 35 U.S.C. § 103 (a) is assumed that the Examiner's basis is that the '473 Ponzi patent would constitute prior art under 35 U.S.C. § 102 (e) since the filing date of Ponzi is prior to the priority date of the Applicant's present application, and Ponzi was issued after the priority date and filing date of the Applicant's present application.

It is important to note that the '473 Ponzi patent is assigned on its face to Cordis Webster (now incorporated and known as Biosense Webster, Inc.) a corporation owned by Cordis Corporation (a Johnson & Johnson Company). And, the present application is assigned to Biosense, Inc. a corporation also owned by Cordis Corporation (a Johnson & Johnson Company). Both of these legal entities are wholly owned subsidiaries of Johnson & Johnson through Cordis Corporation (also a subsidiary of Johnson & Johnson). A copy of the recorded assignment for U.S. Patent NO. 6,027,473 (Ponzi), U.S. Patent Application Ser. No. 08/924,341, Reel/Frame No. 8795/0976 is attached hereto as Attachment 3.



Therefore, the subject matter of the '473 Ponzi patent and the claimed invention of the present application were, at the time the invention was made, owned by the same person or subject to an application of assignment to the same person, i.e. Cordis Corporation (a Johnson & Johnson Company). Accordingly, the '473 patent is not a proper prior art reference in accordance with 35 U.S.C. § 103 (c).

Moreover, even if Ponzi was to be considered a proper prior art reference, even if it were to be combined with Flaherty et al., this combination would not be obvious since this combination fails to describe, suggest or even infer the Applicant's claimed present invention as detailed previously and for the reasons outlined above. Accordingly, this rejection is without legal basis and should be overruled.

**D. The rejection of Claims 19-24 under 35 U.S.C. § 103 (a) as being unpatentable over Flaherty et al., in view of U.S. Patent No. 6,321,109 ("Hamis" – Applicant notes that this reference should be properly identified as "Ben-Haim et al.") or U.S. Patent No. 6,027,473 (Ponzi) in view of U.S. Patent No. 6,283,951 to Flaherty et al., further in view of U.S. Patent No. 6,258,789 (German et al.) is both confusing and clearly without merit.**

Not only is the rejection as stated by the Examiner confusing, it is clearly erroneous. The '109 Ben-Haim et al. patent or "Hamis" as identified by the Examiner and the '473 Ponzi patent are not proper prior art references for the reasons outlined above. Additionally, as detailed previously, the Flaherty et al. reference is severely deficient in its teachings and actually teaches away from the Applicant's claimed present invention.

German et al. is directed solely to the delivery of gene products by intestinal cell expression wherein a formulation comprising nucleic acids (DNA, RNA, DNA-RNA Hybrids, oligonucleotides, and synthetic nucleic acids) are delivered into the gastrointestinal tract of a patient (*in vivo* gene therapy) in order to incorporate the

nucleic acids into the epithelial cells of the intestine. Col. 3, lines 1-13; col. 9, lines 8-10. Additionally, German et al. describes delivery of the DNA via the mouth directly into the GI tract. Col. 9, lines 8-12.

It is important to note that the unique *in vivo* gene therapy approach disclosed in German et al. is entirely distinct from the method steps of the claimed present invention (Claims 19-24). German et al. simply does not address, suggest or even infer treating a cell prior to delivery (Claim 19 of the present invention); utilizing an immunosuppressant (Claim 20 of the present invention); harvesting the cell from the patient (Claim 21 of the present invention); treating the cell prior to delivery (Claim 22 of the present invention); utilizing a genetically superior cell (Claim 23 of the present invention) and utilizing a cell that is a xenograft (Claim 24 of the present invention).

Accordingly, neither Flaherty, nor German et al., either alone or in combination with each other describe, suggest or infer the Applicant's claimed invention of Claims 19-24 even if these references were combined with the teachings of Ponzi and/or Ben-Haim et al. Accordingly, these claims are clearly not rendered obvious by these references.

In establishing a basis for denying patentability of an invention, the initial burden rests with the Examiner. *In re Piasecki*, 745 F.2d 1468; 223 USPQ 785 (Fed. Cir. 1984). Thus, it is incumbent upon the Examiner to provide a reason why of ordinary skill in the art would have been led to modify a prior art reference or to combine teachings in order to arrive at the claimed invention. *Ex Parte Clapp*, 227 USPQ 972 (BPAI 1985). Moreover, this reason must stem from some teaching, suggestion or inference in the prior art or knowledge generally available and not from the Applicant's disclosure. *Uniroyal, Inc., v. Rudkin-Wiley Corp.*, 837 F.2d 1044; 5 USPQ 2d 1434 (Fed. Cir. 1988). As stated in *W.L. Gore and Associates, Inc., v. Garlock, Inc.*, 721 F.2d 1540; 220 USPQ 303 (Fed. Cir. 1983):

[t]o imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.

The Federal Circuit's case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. *See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) ("the Board must identify specifically . . . the reasons one of ordinary skill in the art would have been motivated to select the references and combine them"); *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (examiner can satisfy burden of obviousness in light of combination "only by showing some objective teaching [leading to the combination]"); *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) (evidence of teaching or suggestion "essential" to avoid hindsight); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297, 227 USPQ 657, 667 (Fed. Cir. 1985) (district court's conclusion of obviousness was error when it "did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination"). *See also Graham*, 383 U.S. at 18, 148 USPQ at 467 ("strict observance" of factual predicates to obviousness conclusion required). Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight. *See, e.g., Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed. Cir. 1985) ("The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time."). In this case, it appears that the Examiner has fallen into the hindsight trap.'

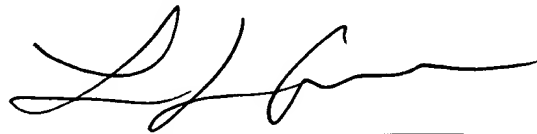
Upon careful review of the teachings of Flaherty et al., Ben-Haim et al., Ponzi, and German et al., it is clear that the Examiner is cobbling together teachings from each of these references (to include the very limited and deficient teachings found in Flaherty et al. and German et al.) using the Applicant's own Specification as a blueprint. Accordingly, this rejection constitutes a classic use of hindsight and should be overruled.

**E. Summary**

Therefore, for the reasons detailed above, it is clear that the Examiner's rejections are without legal basis and that several significant patentable differences exist between the Applicant's claimed present invention and the teachings of the cited prior art references used in these rejections. Accordingly, the Applicant's claimed present invention is clearly patentable over these references and each rejection should be overruled.

This Brief is being submitted in triplicate with the required fee as set forth in 37 C.F.R. § 1.17 (c).

Respectfully submitted,



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DATE: October 2, 2003

**(9) APPENDIX**

1. A method for delivering a cell to a heart of a patient comprising the steps of:

providing an apparatus for intracardiac drug administration comprising a catheter, said catheter having at least one position sensor which generates signals responsive to an applied field for determining the position and orientation of said catheter, said signals being used to generate position and orientation coordinates, and a drug delivery device for delivering said cell;

inserting said catheter into a chamber of said heart at a site;

delivering said cell to said site with said drug delivery device based on position and orientation coordinates in response to said signals from said position sensor.

2. The method according to Claim 1, wherein said cell is a myoblast or a myocyte.
3. The method according to Claim 2, including assessing the viability of said heart prior to delivering said cell.
4. The method according to Claim 3, including delivering said cell based on the assessed viability of said heart.
5. The method according to Claim 4, including assessing the viability of said heart with said viability map of said heart.
6. The method according to Claim 5, including identifying an ischemic zone of said heart on said map as the site suitable for targeted therapy.

7. The method according to Claim 6, including determining a delivery site within said ischemic zone.
8. The method according to Claim 7, including assessing the viability of said heart after delivering said cell.
9. The method according to Claim 5, including identifying an infarct region of said heart on said map as the site suitable for targeted therapy.
10. The method according to Claim 9, including determining a delivery site at said.
11. The method according to Claim 10, including assessing the viability of said heart after delivering said cell.
12. The method according to Claim 2, wherein said cell is an expression vector capable of expressing an angiogenic factor.
13. The method according to Claim 12, wherein said expression vector includes a recombinant molecule.
14. The method according to Claim 13, wherein said recombinant molecule is a gene.
15. The method according to Claim 12, wherein said angiogenic factor is a growth factor.
16. The method according to Claim 2, wherein said cell is capable of cell fusion with other cells.
17. The method according to Claim 16, wherein said cell fusion results in myogenesis.
18. The method according to Claim 17, wherein said cell is derived from a donor.

19. The method according to Claim 18, wherein said cell is treated prior to delivery.
20. The method according to Claim 19, wherein said cell is treated with an immunosuppressant.
21. The method according to Claim 17, wherein said cell is harvested from said patient.
22. The method according to Claim 21, wherein said cell is treated prior to delivery.
23. The method according to Claim 22, wherein said treatment results in a genetically superior cell.
24. The method according to Claim 22, wherein said cell is a xenograft.
25. The method according to Claim 1, including creating a channel at said site prior to delivering said cell.
26. The method according to Claim 25, including creating said channel with a laser.
27. The method according to Claim 12, including creating a channel at said site prior to delivering said cell.
28. The method according to Claim 27, including creating said channel with a laser.
29. The method according to Claim 16, including creating a channel at said site prior to delivering said cell.
30. The method according to Claim 29, including creating said channel with a laser.
31. The method according to Claim 1, including delivering said cell at said site at an oblique angle.

32. The method according to Claim 31, wherein said drug delivery device includes a needle.
33. The method according to Claim 31, wherein said drug delivery device is capable of providing a pressure burst.
34. The method according to Claim 32, wherein said needle is retractable.
35. The method according to Claim 25, wherein said drug delivery device includes a needle.
36. The method according to Claim 25, wherein said drug delivery device is capable of providing a pressure burst.
37. The method according to Claim 35, wherein said needle is retractable.
38. The method according to Claim 27, wherein said drug delivery device includes a needle.
39. The method according to Claim 27, wherein said drug delivery device is capable of providing a pressure burst.
40. The method according to Claim 38, wherein said needle is retractable.



**ATTACHMENT 1**

\*\* JOB STATUS REPORT

AS OF MAY 05 6:04 PM PAGE. 01

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DOCKET NO. BIO-76

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Shlomo Ben-Haim et al.

Serial No.: 09/379,540

Art Unit: 3763

Filed : August 24, 1999

Examiner: Roz Ghafoorian

For : INTRACARDIAC CELL DELIVERY AND CELL TRANSPLANTATION

Commissioner for Patents  
Washington, D.C. 20231

TERMINAL DISCLAIMER

Dear Sir:

Your Petitioner, Biosense, Inc., a corporation of the State of Delaware, having a registered office at One Johnson & Johnson Plaza, New Brunswick, NJ 08933, represents that it is the Assignee of the entire right, title and interest in and to the subject matter disclosed in the above-captioned patent application by virtue of its being a continuation-in-part of U.S. Patent Application Serial No. 09/019,453, filed February 5, 1998. Biosense, Inc. is the owner of U.S. Patent Application Serial No. 09/379,540 filed August 24, 1999 as evidenced by the attached copies of documents sent on August 24, 1999 for recording in the United States Patent and Trademark Office. Aforementioned U.S. Patent Application Serial No. 09/379,540, filed August 24, 1999 is a continuation-in-part of U.S. Patent Application Serial No. 09/019,453 filed February 5, 1998, now issued as U.S. Patent 6,309,370 dated October 30, 2001.

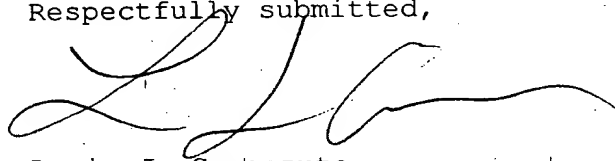
Your Petitioner, Biosense, Inc. hereby disclaims, under the provisions of 35 USC 253 and 37 CFR 1.321 and 3.73, the terminal part of any patent granted on application Serial No. 09/379,540 which would extend beyond the expiration date of United States Patent No. 6,309,370 and hereby agrees that any patent so granted on application Serial No. 09/379,540 shall be enforceable only for and during such period that the

legal title of said patent shall be the same as the legal title to United States Patent No. 6,309,370, this agreement to run with any patent granted on application Serial No. 09/379,540 and to be binding upon the grantee, its successors or assigns.

The Terminal Disclaimer fee of \$110.00 and any additional fees which may be owed in connection with the filing of this Terminal Disclaimer can be charged to Johnson & Johnson Deposit Account No. 10-0750/BIO-76/LJC. Three copies of this sheet are enclosed.

Signed at New Brunswick, New Jersey this 5th day of May, 2003

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Louis J. Capezzuto', written over a horizontal line.

Louis J. Capezzuto  
Reg. No. 37,107

Johnson & Johnson  
One Johnson & Johnson Plaza  
New Brunswick, NJ 08933-7003  
(732) 524-2218  
Date: May 5, 2003



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office  
ASSISTANT SECRETARY AND COMMISSIONER  
OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

MARCH 27, 2000

JOHNSON & JOHNSON  
AUDLEY A. CIAMPORCERO, JR., ESQ.  
CHIEF PATENT COUNSEL  
ONE JOHNSON & JOHNSON PLAZA  
NEW BRUNSWICK, NEW JERSEY 08933-7093

PTAS

RECEIVED

MAR 31 2000

J & J PAT. DKT. SECTION

\*101242075A\*

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

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PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 12/20/1999

REEL/FRAME: 010475/0377  
NUMBER OF PAGES: 11

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:  
BEN-HAIM, SHLOMO

DOC DATE: 10/14/1999

ASSIGNOR:  
YARON, URI

DOC DATE: 10/06/1999

ASSIGNOR:  
WEINFELD, ZE'EV

DOC DATE: 10/06/1999

ASSIGNOR:  
SCHWARTZ, YITZHAK

DOC DATE: 10/06/1999

ASSIGNOR:  
MATCOVITCH, AVRAHAM

DOC DATE: 10/06/1999

ASSIGNEE:  
BIOSENSE, INC.  
ONE JOHNSON & JOHNSON PLAZA  
NEW BRUNSWICK, NEW JERSEY 08933

09/379,540

010475/0377 PAGE 2

SERIAL NUMBER: 09379540  
PATENT NUMBER:

FILING DATE: 08/24/1999  
ISSUE DATE:

ALLYSON PURNELL, EXAMINER  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS

12-20-99

# RECORDATION FORM COVER SHEET PATENTS ONLY

01-11-2000

Commissioner of Patent and

Please record the attached ori



101242075

Class of receiving party(ies):

1. Name of conveying party(ies):

Shlomo Ben-Haim  
Uri Yaron  
Ze'ev Weinfeld  
Yitzhak Schwartz  
Avraham Matcovitch

Name: Biosense, Inc.

Street Address:

One Johnson &amp; Johnson Plaza

City: New Brunswick

State: NJ Zip: 08933

Additional name(s) of conveying party(ies) attached?

☐ Yes ☒ No

Additional name(s) &amp; address(es) attached?

☐ Yes ☒ No

3. Nature of conveyance:

☒ Assignment ☐ Merger  
☐ Security Agreement ☐ Change of Name  
☐ Other \_\_\_\_\_

Execution Date: October 6, 1999 and  
October 14, 1999

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.(s)

09/379,540

B. Patent No.(s)

Additional numbers attached? ☐ Yes ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

Audley A. Ciamporero, Jr., Esq.  
Chief Patent Counsel  
Johnson & Johnson  
One Johnson & Johnson Plaza  
New Brunswick, NJ 08933-7003

6. Total number of applications & patents involved: 17. Total fee (37 CFR 3.41) ..... \$40.00
☒ Authorized to be charged to Deposit Account

8. Deposit Account Number: 10-0750/BIO76/LJC

9. Statement and signature

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Louis J. Capezzuto

December 17, 1999

Name of Person Signing

Signature

Date

Total number of pages including cover sheet, attachments, and document: 11

Mail documents to be recorded with required cover sheet information to:

Box Assignments

Commissioner of Patent and Trademarks

Washington, D.C. 20231

01/10/2000 DC000105 00000105 100750 09379540  
01 FC:581 40.00 CH



AUTHENTICATION SIGNATURE

NO. 4183/99 מספר

אימות חתימה

I, the undersigned YORAM NAUMANN, ADV.  
& Notary at HAIFA, 131 HANASSI AVE.  
hereby certify that on: 06/10/99

אני הח"מ, יורם נאומן עו"ד  
ונוטריון משד' הנשיא 131, חיפה,  
מאשר כי ביום: -

there appeared before me at my office

ניצב/ה/ו בפני

(1).Mr/Mrs

AVRAHAM MATCOVITCH

(1) מר/ת  
אברהם מטקוביץ

whose Identity was proved to me by  
His/her certificate of Identity No.: 069747897

שזהותו/ה הוכחה לי על פי

(2).Mr/Mrs

URI YARON

(2) מר/ת  
אורי ירון

whose Identity was proved to me by  
his/her certificate of Identity No.: 057292963

שזהותו/ה הוכחה לי על פי

(1).Mr/Mrs

ZE'EV WEINFELD

ת.ז. מס:  
(1) מר/ת  
זאב ויינפלד

whose Identity was proved to me by  
His/her certificate of Identity No.: 056662042

שזהותו/ה הוכחה לי על פי

(2).Mr/Mrs

YITZHAK SCHWARTZ

ת.ז. מס:  
(2) מר/ת  
יצחק שוורץ

whose Identity was proved to me by  
his/her certificate of Identity No.: 056790348

שזהותו/ה הוכחה לי על פי

ת.ז. מס:

and signed of his/her own free will the  
document as above (appearing overleaf)  
(attached and marked "A").

חתם/ה מרצונו/ה החופשי  
על המסמך המצורף לאישור זה  
/ שמעבר לרף (המסומן באות "א")

In witness whereof I hereby authenticate  
the signature/s of: The aforementioned/  
The said Signee

לראיה אני מאמת את חתימתו/ה/ם  
של: החותם/ים הנ"ל.

by my signature and seal this.

היום בחתימת ידי ובחותמי,

10/10/99

שכר בסך:

Fees in the amount of: 266.-  
have been paid

שולם.

אם לא צויין סכום, שכ"ט כלול בעיסקה



A S S I G N M E N T

Serial No.  
Filed

WHEREAS, Shlomo Ben-Haim, citizen of Israel, residing at 101 Yefe Nof Street, Haifa 34454, Israel; Uri Yaron, citizen of Israel, residing at 16 Harekefet Street, Zichron Yaakov 30900 Israel; Ze'ev Weinfeld, citizen of Israel, residing at 29 Bney-Binyamin Street, Herzliya 46362, Israel, Yitzhak Schwartz, citizen of Israel, residing at 28 Hantke Street, Haifa 34606, Israel, and Avraham Matcovitch, citizen of Israel, residing at 6/3 Yasmin Street, Nesher 36780, Israel (hereinafter called "Assignors"), have made certain new and useful inventions or discoveries relating to

INTRACARDIAC CELL DELIVERY AND CELL TRANSPLANTATION

for which they have on the            day of            , 199    executed an application for Letters Patent of the United States; and

WHEREAS, Biosense, Inc., a corporation of the State of            , (hereinafter called "Assignee"), is desirous of acquiring Assignors' entire right, title, and interest therein:

NOW, THEREFORE, BE IT KNOWN that for and in consideration of the sum of One Dollar and other valuable considerations to them moving, the receipt of which is hereby acknowledged, Assignors have sold, assigned, and transferred, and do hereby sell, assign and transfer unto said Assignee their entire right, title and interest in and to all said inventions and discoveries disclosed in said application whose identification above by serial number and filing date, when available is hereby authorized, and in and to said application, all substitutions, divisions, and continuations thereof, and in and to all Letters Patent, United States and foreign, that may be granted for said inventions and discoveries, and in and to all extensions, renewals, and reissues thereof, the same to be held and enjoyed by said Assignee, its successors and assigns, as fully and entirely as the same would have been held and enjoyed by Assignors if this Assignment and sale had not been made;

And Assignors hereby authorize and request the Commissioner of Patents of the United States to issue said Letters Patent in accordance with this Assignment;



And for the consideration aforesaid, Assignors further covenant and agree that they will, whenever requested, but without cost to them promptly communicate to said Assignee or its representatives any facts known to them relating to said inventions and discoveries, testify in any interference or legal proceedings involving said inventions and discoveries, and execute any additional papers that may be necessary to enable said Assignee or its representatives, successors, nominees, or assigns to secure full and complete protection for the said inventions and discoveries or that may be necessary to vest in said Assignee the complete title to the said inventions and discoveries and patents hereby conveyed and to enable it to record said title.

Shlomo Ben-Haim

STATE OF )  
COUNTY OF ) ss.

Notary Public





Yitzhak Schwartz (L.S.)  
Yitzhak Schwartz

BE IT REMEMBERED, That on this 6 10. 1999 day of 1999, before me, a Notary Public, personally appeared Yitzhak Schwartz, who I am satisfied is the person named in and who executed the foregoing instrument in my presence, and I having first made known to him the contents thereof, he did acknowledge that he signed, sealed, and delivered the same as his voluntary act and deed for the uses and purposes therein expressed.

IN TESTIMONY WHEREOF, Assignor has hereunto set his  
hand and seal this            day of            , 199            6 10 1999

STATE OF )  
COUNTY OF ) ss.

BE IT REMEMBERED, That on this 6 10. 1999 day of 1999, before me, a Notary Public, personally appeared Avraham Matcovitch, who I am satisfied is the person named in and who executed the foregoing instrument in my presence, and I having first made known to him the contents thereof, he did acknowledge that he signed, sealed, and delivered the same as his voluntary act and deed for the uses and purposes therein expressed.

יורם נאומן, ע"ד  
 YORAM NAUMANN, ADVOCATE  
 HAIFA, POB 6405 ת.י. 6405  
 HANASSI AVE 131 סניף  
 TEL/FAX 8389318 טלפקס  
 ISRAEL

~~Notary~~ Public

AUTHENTICATION OF SIGNATURE

אימות חתימה

NO. 4197/99 מספר

I, the undersigned YORAM NAUMANN, ADV.  
& Notary at HAIFA, 131 HANASSI AVE.  
hereby certify that on: 14/10/99

אני הח"מ, יורם נאומן עו"ד  
ונטריון משד' הנשיא 131, חיפה,  
מאשר כי כיום:-

there appeared before me at my office

ניצב/ה/ו בפני

(1).Mr/Mrs

(1) מר/ת

SHLOMO BEN-HAIM

שלמה בן-חיים

whose Identity was proved to me by  
His/her certificate of Identity No.: 054156955

שזהותו/ה הוכחה לי על פי

ת.ז. מס.:

PASS NO.

דרכון מס:

Issued by:

שהוצא ע"י:

on:

כיום:

(2).Mr/Mrs

(2) מר/ת

whose Identity was proved to me by  
his/her certificate of Identity No.:

שזהותו/ה הוכחה לי על פי

ת.ז. מס:

Pass.No.

Issued by:

הוצא ע"י:

כיום:

and signed of his/her own free will the  
document as above (appearing overleaf)  
(attached and marked "A").

חתם/ה מרצונו/ה החופשי  
על המסמך המצורף לאישור זה  
/ שמעבר לדף (המסומן באות "א").

In witness whereof I hereby authenticate  
the signature/s of: The aforementioned/  
The said Signee

לראיה אני מאמת את חתימתו/ה/ם  
של: החותם/ים הנ"ל.

by my signature and seal this.

היום בחתימת ידי ובחותמי,

17/10/99

שכר בסך:

Fees in the amount of: 122.-  
been paid

שולם.

אם לא צויין סכום, שכ"ט כלול בעסקה



DOCKET NO: BIO-76  
Joint Inventors

A S S I G N M E N T

Serial No.  
Filed

WHEREAS, Shlomo Ben-Haim, citizen of Israel, residing at 101 Yefe Nof Street, Haifa 34454, Israel; Uri Yaron, citizen of Israel, residing at 16 Harekefet Street, Zichron Yaakov 30900 Israel; Ze'ev Weinfeld, citizen of Israel, residing at 29 Bney-Binyamin Street, Herzliya 46362, Israel, Yitzhak Schwartz, citizen of Israel, residing at 28 Hantke Street, Haifa 34606, Israel, and Avraham Matcovitch, citizen of Israel, residing at 6/3 Yasmin Street, Nesher 36780, Israel (hereinafter called "Assignors"), have made certain new and useful inventions or discoveries relating to

INTRACARDIAC CELL DELIVERY AND CELL TRANSPLANTATION

for which they have on the            day of            , 199    executed an application for Letters Patent of the United States; and

WHEREAS, Biosense, Inc., a corporation of the State of            , (hereinafter called "Assignee"), is desirous of acquiring Assignors' entire right, title, and interest therein:

NOW, THEREFORE, BE IT KNOWN that for and in consideration of the sum of One Dollar and other valuable considerations to them moving, the receipt of which is hereby acknowledged, Assignors have sold, assigned, and transferred, and do hereby sell, assign and transfer unto said Assignee their entire right, title and interest in and to all said inventions and discoveries disclosed in said application whose identification above by serial number and filing date, when available is hereby authorized, and in and to said application, all substitutions, divisions, and continuations thereof, and in and to all Letters Patent, United States and foreign, that may be granted for said inventions and discoveries, and in and to all extensions, renewals, and reissues thereof, the same to be held and enjoyed by said Assignee, its successors and assigns, as fully and entirely as the same would have been held and enjoyed by Assignors if this Assignment and sale had not been made;

And Assignors hereby authorize and request the Commissioner of Patents of the United States to issue said Letters Patent in accordance with this Assignment;

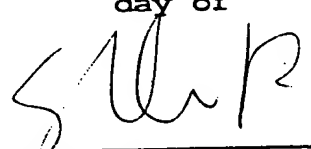
נוטריון  
יורם נאומן, עו"ד  
YORAM NAUMANN ADVOCATE  
HAIFA, P.O. BOX 2405 71101  
JERUSALEM 121 11000  
TEL/FAX 9389312 טקס 9389312

SPH

And for the consideration aforesaid, Assignors covenant and agree with said Assignee that he has a full and unencumbered title to the inventions and discoveries above described and hereby assigned, which title they warrant unto said Assignee, its successors and assigns;

And for the consideration aforesaid, Assignors further covenant and agree that they will, whenever requested, but without cost to them promptly communicate to said Assignee or its representatives any facts known to them relating to said inventions and discoveries, testify in any interference or legal proceedings involving said inventions and discoveries, and execute any additional papers that may be necessary to enable said Assignee or its representatives, successors, nominees, or assigns to secure full and complete protection for the said inventions and discoveries or that may be necessary to vest in said Assignee the complete title to the said inventions and discoveries and patents hereby conveyed and to enable it to record said title.

IN TESTIMONY WHEREOF, Assignor has hereunto set his hand and seal this            day of            , 199            14.10.1999

  
\_\_\_\_\_  
Shlomo Ben-Haim

(L.S.)

STATE OF            )

) ss.

COUNTY OF            )

14.10.1999

BE IT REMEMBERED, That on this            day of            , 199 , before me, a Notary Public, personally appeared Shlomo Ben-Haim, who I am satisfied is the person named in and who executed the foregoing instrument in my presence, and I having first made known to him the contents thereof, he did acknowledge that he signed, sealed, and delivered the same as his voluntary act and deed for the uses and purposes therein expressed.

\_\_\_\_\_  
Notary Public







(L.S.)

(L.S.)

יורם ראמאן, עו"ד  
 YORAM RAHMAN, ADVOCATE  
 HAIFA, P.O.B 6405  
 HARASSI AVE 131  
 TEL/FAX 089318  
 ISRAEL

**ATTACHMENT 2**



BIO-40  
UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office  
ASSISTANT SECRETARY AND COMMISSIONER  
OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APRIL 07, 1999

PTAS

JOHNSON & JOHNSON  
AUDLEY A. CIAMPORCERO, JR., ESQ.  
ONE JOHNSON & JOHNSON PLAZA  
NEW BRUNSWICK, NJ 08933-7003



\*100934277A\*

UNITED STATES PATENT AND TRADEMARK OFFICE  
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PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 12/29/1998

REEL/FRAME: 9672/0661  
NUMBER OF PAGES: 5

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

BEN-HAIM, SHLOMO

DOC DATE: 09/26/1998

ASSIGNOR:

FENSTER, MAIER

DOC DATE: 09/03/1998

ASSIGNEE:

BIOSENSE, INC.  
ONE JOHNSON & JOHNSON PLAZA  
NEW BRUNSWICK, NEW JERSEY 08933

SERIAL NUMBER: 09117804

PATENT NUMBER:

FILING DATE:

ISSUE DATE:

SHARMALLA COATES, EXAMINER  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS

09/17,804



Commissioner of Patent ar

12-29-98

100934277

Please record the attached original documents or copy thereof.

<b>1. Name of conveying party(ies):</b>  Ben-Haim, Shlomo Fenster, Maier  Additional name(s) of conveying party(ies) attached?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<b>2. Name and address of receiving party(ies):</b>  Name: Biosense, Inc.  Street Address: One Johnson & Johnson Plaza  City: New Brunswick State: NJ Zip: 08933  Additional name(s) & address(es) attached?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>3. Nature of conveyance:</b>  <input checked="" type="checkbox"/> Assignment <input type="checkbox"/> Merger <input type="checkbox"/> Security Agreement <input type="checkbox"/> Change of Name <input type="checkbox"/> Other _____  Execution Date: September 3 & 26, 1998			
<b>4. Application number(s) or patent number(s):</b>  If this document is being filed together with a new application, the execution date of the application is:  A. Patent Application No.(s) B. Patent No.(s)  09/117,804  Additional numbers attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<b>5. Name and address of party to whom correspondence concerning document should be mailed:</b>  Audley A. Ciamporero, Jr., Esq. Chief Patent Counsel Johnson & Johnson One Johnson & Johnson Plaza New Brunswick, NJ 08933-7003		<b>6. Total number of applications &amp; patents involved:</b> <u>1</u>  <b>7. Total fee (37 CFR 3.41) .....</b> \$40.00 <i>40E</i>  <input checked="" type="checkbox"/> Authorized to be charged to Deposit Account  <b>8. Deposit Account Number:</b> 10-0750/BIO-40/LJC	
<b>9. Statement and signature</b>  <i>To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.</i>  Louis J. Capezzuto _____  Name of Person Signing Signature Date: December 21, 1998  Total number of pages including cover sheet, attachments, and document: 5			

Mail documents to be recorded with required cover sheet information to:

Box Assignments  
Commissioner of Patent and Trademarks  
Washington, D.C. 20231

ASSIGNMENT

Serial No.

Filed: August 7, 1998

WHEREAS, Shlomo Ben-Haim, citizen of Israel, residing at 101 Yefe Nof Street, Haifa, 34454, Israel; and Maier Fenster, citizen of Israel, 61 Brande Street, Petach Tikva, 49600 Israel; (hereinafter called "Assignors"), have made certain new and useful inventions or discoveries relating to:

CATHETER BASED SURGERY

for which they have this day executed an application for Letters Patent of the United States; and

WHEREAS, Biosense, Inc., a corporation organized under the laws of the State of Delaware, (hereinafter called "Assignee"), is desirous of acquiring Assignors' entire right, title, and interest therein:

NOW, THEREFORE, BE IT KNOWN that for and in consideration of the sum of One Dollar and other valuable considerations to them moving, the receipt of which is hereby acknowledged, Assignors have sold, assigned, and transferred, and do hereby sell, assign and transfer unto said Assignee their entire right, title and interest in and to all said inventions and discoveries disclosed in said application whose identification above by serial number and filing date, when available is hereby authorized, and in and to said application, all substitutions, divisions, and continuations thereof, and in and to all Letters Patent, United States and foreign, that may be granted for said inventions and discoveries, and in and to all extensions, renewals, and reissues thereof, the same to be held and enjoyed by said Assignee, its successors and assigns, as fully and entirely as the same would have been held and enjoyed by Assignors if this Assignment and sale had not been made;

And Assignors hereby authorize and request the Commissioner of Patents of the United States to issue said Letters Patent in accordance with this Assignment;

And for the consideration aforesaid, Assignors covenant and agree with said Assignee that he has a full and unencumbered title to the inventions and discoveries above described and hereby assigned, which title they warrant unto said Assignee, its successors and assigns;

And for the consideration aforesaid, Assignors further covenant and agree that they will, whenever requested, but without cost to them promptly communicate to said Assignee or its representatives any facts known to them relating to said inventions and discoveries, testify in any interference or legal proceedings involving said inventions and discoveries, and execute any additional papers that may be necessary to enable said Assignee or its representatives, successors, nominees, or assigns to secure full and complete protection for the said inventions and discoveries or that may be necessary to vest in said Assignee the complete title to the said inventions and discoveries and patents hereby conveyed and to enable it to record said title.

IN TESTIMONY WHEREOF, Assignors have hereunto set their hands and seals this 26<sup>th</sup> day of Sept, 1998.

Shlomo Ben-Haim (L.S.)  
Shlomo Ben-Haim

STATE OF Haifa )  
COUNTY OF Tel Aviv ) ss.

BE IT REMEMBERED, That on this \_\_\_\_\_ day of \_\_\_\_\_, 1998, before me, a Notary Public, personally appeared Shlomo Ben-Haim, who I am satisfied is the person named in and who executed the foregoing instrument in my presence, and I having first made known to him the contents thereof, he did acknowledge that he signed, sealed, and delivered the same as his voluntary act and deed for the uses and purposes therein expressed.

\_\_\_\_\_  
Notary Public

IN TESTIMONY WHEREOF, Assignors have hereunto set their hands and seals this \_\_\_\_\_ day of \_\_\_\_\_, 1998.

\_\_\_\_\_  
Maier Fenster (L.S.)

STATE OF \_\_\_\_\_ )  
COUNTY OF \_\_\_\_\_ ) ss.

BE IT REMEMBERED, That on this \_\_\_\_\_ day of \_\_\_\_\_, 1998, before me, a Notary Public, personally appeared Maier Fenster, who I am satisfied is the person named in and who executed the foregoing instrument in my presence, and I having first made known to him the contents thereof, he did acknowledge that he signed, sealed, and delivered the same as his voluntary act and deed for the uses and purposes therein expressed.

\_\_\_\_\_  
Notary Public

ASSIGNMENT

Serial No.

Filed: August 7, 1998

WHEREAS, Shlomo Ben-Haim, citizen of Israel, residing at 101 Yefe-Nof Street, Haifa, 34454, Israel; and Maier Fenster, citizen of Israel, 61 Brande Street, Petach Tikva, 49600 Israel; (hereinafter called "Assignors"), have made certain new and useful inventions or discoveries relating to:

CATHETER BASED SURGERY

for which they have this day executed an application for Letters Patent of the United States; and

WHEREAS, Biosense, Inc., a corporation organized under the laws of the State of Delaware, (hereinafter called "Assignee"), is desirous of acquiring Assignors' entire right, title, and interest therein:

NOW, THEREFORE, BE IT KNOWN that for and in consideration of the sum of One Dollar and other valuable considerations to them moving, the receipt of which is hereby acknowledged, Assignors have sold, assigned, and transferred, and do hereby sell, assign and transfer unto said Assignee their entire right, title and interest in and to all said inventions and discoveries disclosed in said application whose identification above by serial number and filing date, when available is hereby authorized, and in and to said application, all substitutions, divisions, and continuations thereof, and in and to all Letters Patent, United States and foreign, that may be granted for said inventions and discoveries, and in and to all extensions, renewals, and reissues thereof, the same to be held and enjoyed by said Assignee, its successors and assigns, as fully and entirely as the same would have been held and enjoyed by Assignors if this Assignment and sale had not been made;

And Assignors hereby authorize and request the Commissioner of Patents of the United States to issue said Letters Patent in accordance with this Assignment;

And for the consideration aforesaid, Assignors covenant and agree with said Assignee that he has a full and unencumbered title to the inventions and discoveries above described and hereby assigned, which title they warrant unto said Assignee, its successors and assigns;

And for the consideration aforesaid, Assignors further covenant and agree that they will, whenever requested, but without cost to them promptly communicate to said Assignee or its representatives any facts known to them relating to said inventions and discoveries, testify in any interference or legal proceedings involving said inventions and discoveries, and execute any additional papers that may be necessary to enable said Assignee or its representatives, successors, nominees, or assigns to secure full and complete protection for the said inventions and discoveries or that may be necessary to vest in said Assignee the complete title to the said inventions and discoveries and patents hereby conveyed and to enable it to record said title.



IN TESTIMONY WHEREOF, Assignors have hereunto set their hands and seals this \_\_\_\_ day of \_\_\_\_\_, 1998.

\_\_\_\_\_  
Shlomo Ben-Haim (L.S.)

STATE OF \_\_\_\_\_ )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

BE IT REMEMBERED, That on this \_\_\_\_ day of \_\_\_\_\_, 1998, before me, a Notary Public, personally appeared Shlomo Ben-Haim, who I am satisfied is the person named in and who executed the foregoing instrument in my presence, and I having first made known to him the contents thereof, he did acknowledge that he signed, sealed, and delivered the same as his voluntary act and deed for the uses and purposes therein expressed.

\_\_\_\_\_  
Notary Public

IN TESTIMONY WHEREOF, Assignors have hereunto set their hands and seals this 3 day of September, 1998.

Maier Fenster  
Maier Fenster (L.S.)

STATE OF \_\_\_\_\_ )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

BE IT REMEMBERED, That on this \_\_\_\_ day of \_\_\_\_\_, 1998, before me, a Notary Public, personally appeared Maier Fenster, who I am satisfied is the person named in and who executed the foregoing instrument in my presence, and I having first made known to him the contents thereof, he did acknowledge that he signed, sealed, and delivered the same as his voluntary act and deed for the uses and purposes therein expressed.

\_\_\_\_\_  
Notary Public

# **ATTACHMENT 3**

## ASSIGNMENT OF PATENT APPLICATION

Assignor(s) : Dean M. Ponzi  
Assignee : Cordis Webster, Inc.  
  
Application No. : 08/924,341  
Filed : September 5, 1997  
Title : HANDLE FOR STEERABLE DMR CATHETER  
  
Executed : September 5, 1997  
Recorded : September 5, 1997  
Reel : 8795  
Frame(s) : 0976  
  
Contents are : Recordation Cover Sheet  
Assignment  
Notice of Recordation by the Patent Office

Case No. W112:31335

CHRISTIE, PARKER & HALE, LLP  
Attorneys

Post Office Box 7068  
Pasadena, California 91109-7068  
Number of pages including cover sheet,  
attachments, and document:

2

11-20-1997

Docket No. 31335/DAD/W

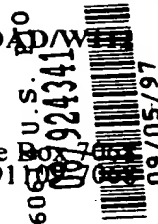


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Commissioner for Patents  
Signments  
ton, D.C. 20231

Post Office  
Pasadena, CA 91109-7068



Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof:

7 9-5-97

1. Name of conveying party(ies): <b>Dean M. Ponzi</b>		2. Name and address of receiving party(ies): <b>Name: Cordis Webster, Inc.</b> <b>Street Address:</b> <b>4750 Littlejohn Street</b> <b>Baldwin Park, California 91706</b>	
Additional name(s) of conveying party(ies) attached:			
Name of conveyance: Assignment <input type="checkbox"/> Merger Security Agreement <input type="checkbox"/> Change of Name Other:		Additional name(s) & address(es) attached?	
Application number(s) or patent number(s): <b>08/924,341</b>			
This document is being filed together with a new application, the execution date of the application: <b>September 5, 1997</b>			
A. Patent Application No.(s)		B. Patent No.(s)	
GWASHING 00000012 08924341 40.00 OP		Additional numbers attached?	
Please return the recorded document and address all correspondence to: <b>CHRISTIE, PARKER &amp; HALE, LLP</b> <b>P.O. Box 7068</b> <b>Pasadena, CA 91109-7068</b> <b>Attention: David A. Dillard</b>		6. Total number of applications and patents involved..... <b>1</b>	
<input type="checkbox"/> Explanatory letter is enclosed.		7. <input checked="" type="checkbox"/> Total fee enclosed (37 CFR 3.41): <b>\$ 40.00</b>	
		8. <input checked="" type="checkbox"/> Any deficiency or overpayment of fees should be charged or credited to Deposit Account No. 03-1728, except for payment of issue fees required under 37 CFR § 1.18. Please show our docket number with any credit or charge to our Deposit Account.	
Statement and signature. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.			
Date: September 5, 1997		By Name: David A. Dillard 626/795-9900; 213/681-1800	
This paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" under 37 CFR § 1.10 Mailing Label No. <u>EM154142764US</u>		Total number of pages including cover sheet, attachments, and document: <b>2</b>	

**ASSIGNMENT**

WHEREAS, I, **Dean M. Ponzi**, residing at 1424 East Leadora Avenue, Glendora, California 91741, have invented certain new and useful improvements disclosed in an application for United States Letters Patent entitled **HANDLE OR STEERABLE DMR CATHETER** and executed by me on even date herewith;

AND WHEREAS **Cordis Webster, Inc.**, a California corporation, having a place of business at 4750 Littlejohn Street, Baldwin Park, California 91706 (hereafter, together with any successors, legal representatives or assigns thereof, called "ASSIGNEE") wants to acquire the entire right, title and interest in and to said improvements and application.

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) to me in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, I have sold, assigned, transferred and set over, and do hereby sell, assign, transfer and set over to ASSIGNEE the entire right, title and interest in and to said improvements, and said application and all divisions and continuations thereof, and all United States Letters Patents which may be granted thereon and all reissues, reexaminations and extensions thereof, and all priority rights under all available International Agreements, Treaties and Conventions for the protection of intellectual property in its various forms in every participating country, and all applications for patents (including related rights such as utility-model registrations, inventor's certificates, and the like) heretofore or hereafter filed for said improvements in any foreign countries, and all patents (including all continuations, divisions, extensions, renewals, substitutes, and reissues thereof) granted for said improvements in any foreign countries; and I hereby authorize and request the United States Commissioner of Patents and Trademarks, and any officials of foreign countries whose duty it is to issue patents on applications as aforesaid, to issue all patents for said improvements to ASSIGNEE in accordance with the terms of this Assignment;

AND I HEREBY covenant that I have full right to convey the entire interest herein assigned, and that I have not executed, and will not execute, any agreement in conflict herewith;

AND I HEREBY further covenant and agree that I will communicate to ASSIGNEE any facts known to me respecting said improvements, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuation, substitute and reissue applications, make all rightful oaths and generally do everything possible to aid ASSIGNEE to obtain and enforce proper patent protection for said improvements in all countries.

IN TESTIMONY WHEREOF, I hereunto set my hand this 5th day of September, 19 97.

Dean M. Ponzi  
Dean M. Ponzi

STATE OF CALIFORNIA  
COUNTY OF LOS ANGELES )

On Sept 5, 1997, before me Caryl Robinson, Notary Public, personally appeared **Dean M. Ponzi** personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Caryl Robinson  
Signature of Notary

DAD/mhl



1998

Christie, Parker & Hale, LLP



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office  
ASSISTANT SECRETARY AND COMMISSIONER  
OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

DECEMBER 31, 1997

PTAS



\*100574930A\*

CHRISTIE, PARKER & HALE, LLP  
DAVID A. DILLARD  
P.O. BOX 7068  
PASADENA, CA 91109-7068

CASE # **31335** ACTION \_\_\_\_\_  
REMINDER \_\_\_\_\_ DUE DATE \_\_\_\_\_  
DEADLINE \_\_\_\_\_

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, NORTH TOWER BUILDING, SUITE 10C35, WASHINGTON, D.C. 20231.

RECORDATION DATE: 09/05/1997

REEL/FRAME: 8795/0976  
NUMBER OF PAGES: 2

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

PONZI, DEAN M.

DOC DATE: 09/05/1997

ASSIGNEE:

CORDIS WEBSTER, INC.  
4750 LITTLEJOHN STREET  
BALDWIN PARK, CALIFORNIA 91706

SERIAL NUMBER: 08924341  
PATENT NUMBER:

FILING DATE:  
ISSUE DATE:

TONYA LEE, EXAMINER  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS